

NOAA Community-Based Restoration Program



Parker River Anadromous Fish Restoration

Background: The Parker River, located in northeastern Massachusetts, is approximately 23 miles long and its watershed covers approximately 82 square miles in Essex County. The river runs through the towns of Boxford, Georgetown, Groveland, and Newbury, where it empties into Plum Island Sound and the Gulf of Maine. Parker River is home to a number of anadromous species including alewife (*Alosa pseudoharengus*), blueback herring (*Alosa aestivalis*), rainbow smelt (*Osmerus mordax*), and white perch (*Morone americanus*). Each spring these species return from the ocean and ascend Parker River to their spawning grounds. These species are important recreational fisheries and serve as valuable prey items for bluefish, striped bass and other recreationally and commercially important fish species. However, the abundance of all of these species has declined relative to historical levels due to inadequate fish passage at dams and other obstructions. Along with many other Federal, state and local partners, the NOAA Restoration Center has undertaken the restoration of the Parker River such that anadromous fish species will once again be able to navigate upstream to their historical spawning grounds.



Parker River above Central St., Byfield, MA.

Anadromous fish species decline has been primarily attributed to the construction of six dams earlier this century that prevent these the fish from reaching spawning areas. Five fishways were constructed during the 1930s and a sixth was installed in the early 1960s. Collectively, these six fishways provided alewives a passable route around the dams to spawning grounds. Alewife populations in the late 1960s through the 1970s were quite healthy. Adults returning to the river in mid-April readily used the fishways to successfully reach suitable spawning areas. Since that time, the condition of all six fishways has deteriorated to the point where several are barely passable and one is completely non-functional.

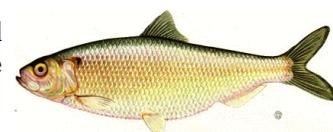
If the alewife population is to rebound in the Parker River, a commitment must be made to the reconstruction of adequate fish passage facilities and to insuring that adequate flows exist during the spring spawning run and during the juvenile outmigration in the late summer and early fall. In the spring of 1997, the Parker River Clean Water Association coordinated a volunteer counting effort to estimate the number of spawning alewives in the Parker River. Only about 6,000 fish returned to the river in 1997, less than one fifth of the number that were observed in the 1970s.

Today, the Parker River alewife run is a mere shadow of its potential and is in serious risk of total collapse. Thanks to the efforts of recreational fishermen from the Essex County Sportsmen's Association and other non-profit organizations, a few alewives now reach spawning grounds. These volunteers spend a considerable amount of time each spring cleaning debris, regulating flows and making temporary repairs where possible. However, more than their efforts are needed if anadromous fish are to return to the Parker River watershed.

The Restoration : There are six dams on the Parker River, five of which are in need of some fish passage improvements to increase anadromous fish populations. A preliminary survey by the U.S. Fish and Wildlife Service suggests that new fishways should be installed in two of the dams, one existing fishway should be enlarged, and improvements to downstream passage should be made at the three other dams. Through the NOAA Community-Based Restoration Program, NOAA Fisheries staff, the FishAmerica Foundation and their local project partners are working in concert with local community members to repair and provide fish passage over the Main Street and Central Street Dams.



Alewife (*Alosa pseudoharengus*)



Blueback Herring - *Alosa aestivalis*



Main Street Dam on the Parker River.

Main Street Dam: Based on a recent site visit it was determined that the highest priority for the river is the installation of a new fish ladder (Alaskan Steeppass) at the Main Street Dam and notching the dam to improve downstream migration of juveniles. The existing fishway at this dam is nonfunctional and it is likely that only a few river herring are able to negotiate the fish ladder. Partners on this portion of the Parker River Restoration include NOAA Fisheries, FishAmerica Foundation, the Natural Resources Conservation Service, Massachusetts Division of Marine Fisheries, Essex County Greenbelt Association, Parker River Watershed Association, and the Essex County Sportsmen's Association.

Central Street Dam: The existing Central Street Dam wall is crumbling and will be fortified by the addition of another wall in front of it. In addition to the new wall, the existing fish ladder will be modified. The first "step" of the ladder is too high for fish to easily ascend the ladder, so an additional step will be constructed at the bottom of the ladder making entrance easier. To combat low flow conditions, a deep "holding pond" will be excavated at the bottom of the dam that will serve to alleviate dry river bed conditions and fish mortality during low water periods of the year. Partners on this project include NOAA Fisheries, FishAmerica Foundation, Essex County Sportsmen's Association, Massachusetts Division of Marine Fisheries, Massachusetts Audubon Society, and Parker River Watershed Association.

Restoration Benefits : With improvements to fish passage the Parker River, alewife population is expected to return to its historical level and anadromous species should benefit as well. Given that there are existing runs of alewife, blueback herring, rainbow smelt, and white perch spawning - there should be no need for stocking. Existing spawning habitat upstream of the dams is still in relatively good condition and should support a full run of anadromous fish. In addition, the Parker River Anadromous Fish Restoration will provide an excellent opportunity for education and stewardship. There is widespread community support for protection of the Parker River and restoration of its anadromous fish species.

Partners in Action : A number of organizations and agencies are committed to protecting the ecological integrity of the Parker River and Plum Island Sound and improving fish passage including the Essex County Greenbelt Association, Parker River Watershed Association, the Essex County Sportsmen Association, Massachusetts Audubon Society, Massachusetts Division of Marine Fisheries, U.S. Fish and Wildlife Service and National Marine Fisheries Service. The Parker River Clean Water Association conducts an annual volunteer count of alewives returning to spawn and the Essex County Sportsmen's Association has organized volunteer cleanups of the fishways and provided funding for installation of a fishway on one of the dams.

NOAA Community-Based Restoration Program: The NOAA Restoration Center is home to the Community-Based Restoration Program, which is a highly successful program involving communities in the restoration of local marine and estuarine habitat. Partnerships with Federal agencies, states, local governments, non-governmental and non-profit organizations, businesses, industry and schools have helped 164 local efforts restore coastal habitat. NOAA Fisheries and its partners provide funding and expertise to numerous coastal community projects that promote coastal stewardship and a conservation ethic. Through partnerships, the Community-Based Restoration Program has been able to leverage \$4-\$10 for every Federal dollar invested.

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